

PRIMARY SARCOMA OF THE OMENTUM.

REPORT OF A CASE AND A STUDY OF THE SUBJECT.

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STIMULATED by the following case, which appeared at the time to be one of great rarity, the writer, on looking up the subject of sarcoma of the omentum, was surprised to find that there was almost nothing in text-books of surgery or pathology in regard to it, and that what was given was often misleading and inaccurate. Not only is this true of sarcoma of the omentum, but also of omental tumors in general.

The writer's case is reported not only because of its rarity, but because its symptoms and signs gave no clue to the real pathological state, but simulated those of a common surgical condition. From a study of this case, and from an exhaustive study of periodical literature, certain definite conclusions can be drawn.

A married woman, 51 years old a patient of Dr. Bragdon, of East Boston, was brought to the accident-room of the Massachusetts General Hospital, October 14, 1903, and was admitted to the service of Dr. H. H. A. Beach, through whose kindness the writer, his assistant surgeon, was put in charge of the case. She had been seen in consultation by Dr. R. H. Fitz with Dr. Bragdon, and was sent to the hospital with a diagnosis of intestinal obstruction.

Family History.—Father died of "old age," mother of apoplexy. Eight brothers and sisters, all well.

Previous history.—Patient thinks she has been a well woman all her life. Two children, the youngest twenty-seven years old. ceased uneventfully three years ago. No previous attacks of Operation for lacerated cervix fourteen years ago. Catamenia abdominal pain or of trouble resembling the present one.

Present Illness.—About three weeks ago she first began to be uncomfortably distended and her bowels would not move for several days unless she took a strong cathartic, when she would have a number of small dark-colored movements. She has had no vomiting, no chills or fever. Distention has, however, increased. She has been troubled by eructations of gas, but has passed very little gas from the bowel; has taken but little food; thinks she has lost no weight.

Examination showed a well-developed and nourished woman, somewhat anæmic in appearance. Leucocytosis of 23,000 twenty-four hours after entering the hospital. Heart and lungs normal. Abdomen much distended, the skin being very tense; the muscles of the abdomen were not rigid. The abdomen was tympanitic everywhere except low down in both flanks, where dulness on percussion was present. The liver and stomach both appeared to be pushed up. No mass in the abdomen could be felt. Examination by the vagina and rectum was negative. A probable diagnosis of intestinal obstruction from malignant disease of the large intestine, presumably in the sigmoid flexure, was made, but, inasmuch as the symptoms did not point to complete obstruction of the bowel, and were not so acute as to demand immediate operation, it seemed wise to give her the benefit of twenty-four hours' observation and see what change the use of high enemata would effect in her condition. During the afternoon and night following her admission to the ward several attempts were made to secure a thorough movement of the bowels by various forms of high and low enemata; there was one small, black, tarry and very foul result, with the passage of a little gas. At the end of twenty-four hours the distension was about the same. The patient was seen in consultation by Dr. Fitz and other members of the hospital staff and all concurred with the writer in the probability of intestinal obstruction from malignant disease of the sigmoid flexure.

About thirty hours after the patient entered the hospital an operation was performed by the writer under gas and ether anæsthesia. An incision was made through the abdominal wall to the left of the median line. On opening the peritoneum bloody fluid under considerable tension gushed out. Cultures from this fluid showed subsequently no growth of bacteria. After about a quart

of fluid had escaped, a large, flat, spongy, hæmorrhagic tumor presented itself in the wound. The abdominal incision was enlarged so as to permit of thorough exploration and inspection, after which it became evident that the whole of the great omentum was much thickened and infiltrated with blood; its appearance was like that of a red bath-sponge about one inch thick. This sponge-like, wide-spreading mass was floating in and on top of the bloody fluid. Underneath this mass were coils of intestines which were everywhere pale and collapsed. Over the surface of this diseased omentum, as well as over the surface of the mesentery of the bowel in some places, were numerous white spots giving the appearance of a typical acute hæmorrhagic pancreatitis, save that the thickening of the omentum was excessive. From the general appearance, and largely because of these areas of what seemed to be fat necrosis, it was thought that the case might be one of sub-acute pancreatitis. Exploration of the region of the pancreas, however, showed no apparent pathological process. The tumor was confined to the great omentum and no extension could be discovered. A piece of the omentum was excised for pathological examination. Since the diseased omentum was very vascular and bled very freely when handled, and because of the poor condition of the patient, nothing further was done. The abdominal wall was closed, gauze and rubber-tube drainage being left in.

To briefly sum up the condition found at the time of operation: The peritoneal cavity was abnormally distended by bloody fluid and the thickened, sponge-like hæmorrhagic omentum, with numerous white necrotic areas, had floated up against the anterior abdominal parietes. The intestines were normal, not distended, not injected. So far as could be determined the other organs were not abnormal.

The patient recovered well from the anæsthesia and twenty-four hours after the operation, after the use of stimulants and subcutaneous salt solution, was in surprisingly good condition. No vomiting; little pain. Very free drainage of bloody fluid into the dressing. Bowels moved freely with small doses of calomel on second day after the operation.

The condition of the patient was one of comparative comfort and freedom from abdominal distention, with very slight febrile

reaction until she was removed to her home by her husband and friends, five days after the operation. She lived for five weeks after the operation.

The report of the pathologist, Dr. W. F. Whitney, upon the piece of omentum removed is as follows: "A small piece of hæmorrhagic, necrotic-looking tissue, which upon examination was found to be composed of a solid mass of large round cells, of varying size, among which were many mitotic figures. The blood-vessels were simply spaces hollowed out in the cellular growth. Large round-cell sarcoma."

The number of cases reported that have been accurately studied is very few, yet certain statements can be made as to the constant diagnostic symptoms and signs. There is no conclusive sign other than a palpable, flat, movable tumor with or without signs of fluid in the abdominal cavity. The main points in the writer's case favored the diagnosis of intestinal obstruction, although it is to be noted that there was no vomiting; that there was a leucocytosis of 23,000, and that the two small fecal movements that were obtained after enemata were black and tarry. While possibly these features were not given sufficient attention at the time, it is to be doubted if they should have aroused any suspicion as to the correctness of the diagnosis of intestinal obstruction.

From a study of the few similar cases reported in periodical literature, it can be seen that the symptoms and signs vary within wide limits, yet are mostly suggestive of chronic intestinal obstruction having for its origin malignant disease of the intestines, and that in nearly all the onset of the disease was so slow that the tumor was felt as a flat or vaguely rounded mass, and the presence of fluid in the abdomen was made out before abdominal distention and constipation became extreme. In this case the only positive diagnostic feature, a palpable tumor associated with fluid, could not be obtained. The majority of the reported cases differ from this in that there is a long period of gastric symptoms with malaise, loss of weight, vomiting, increasing constipation alternating with diarrhœa, and

vague abdominal pain, then a tumor is felt in the mid-abdomen, often first by the patient and in some cases a year or two before death; fluid is detected and the late stages are as in the writer's case, but most often associated with severe paroxysms of pain and vomiting. Bloody or dark stools are mentioned as having been seen in two cases; the cause of this has not been explained. Leucocytosis in the reported cases has not been studied.

The general symptoms in the writer's case were those of increasing intestinal obstruction, with abdominal distention and constipation, without pain, and with very little loss of weight. The progress of the disease was very rapid. A study of reported cases shows that it is usual for this disease to cause earlier symptoms of gastric and intestinal indigestion, gastric pain, nausea, vomiting, with loss of weight and strength for some time before a tumor can be felt. It may be fairly stated that in the majority of instances this disease will cause such preliminary symptoms, with or without alternating constipation and diarrhœa, for several weeks or months. It is noteworthy that in one or two of the cases the presence of a tumor was remarked from one to three years before the final critical symptoms set in.

MATAS¹ reports a case of primary sarcoma of the great omentum on which he performed a laparotomy and removed the entire omentum with secondary growths. (It is instructive to compare his case with that of the writer.)

The patient, a white man, 46 years old, had had symptoms of slight indigestion, nausea, and occasional vomiting after eating, with pain in the region of the pit of the stomach, for from three to five years. Three years before, he felt a fulness in the abdomen and a lump above the navel, painless, but increasing in size. Gradual loss of weight from two hundred to one hundred and forty pounds in three years.

Examination Before Operation.—Sound everywhere else. A distinct irregular ovoidal tumor mass was seen and felt projecting through the abdominal walls in the epigastric and umbilical regions. The tumor was hard and semi-elastic, quite movable up and down and to either side, not tender on manipulation. It is stated that the mass apparently floated about over the intestines. There was some ascites.

Upon operation about a gallon of clear yellow serum, not bloody,

was found, containing many floating particles of a transparent gelatinous substance. The tumor was a resisting, friable, shaggy mass covering the intestines, identical with the omentum. It involved the entire great omentum and was connected to the whole of the greater curvature of the stomach, the spleen and the colon; an outgrowth of the tumor involved the lesser omentum and another, an entirely independent mass, the size of a fist, was growing over the mesentery near the cæcum. The tumor closely resembled a large flat sponge, yellow-red in color, and consisted of a fine friable trabeculated stroma which enclosed in its meshes a translucent gelatinous matter. The regular tissue and fat of the omentum had been supplanted by this gelatinous substance. The tumor was about one and one-half inches thick, rigid and friable, so that whole pieces could be broken off with the fingers. The absolute lack of vascularity was remarkable so that it was possible to tear it off from the stomach and colon with scarcely any hæmorrhage.

Dr. Matas was not able to remove all the disease, but had to leave some shreds of tissue attached to the mesentery and viscera. The abdominal wound was closed with a gauze drain, which was removed on the third day. It is stated that the postoperative course was normal and without incident. The patient gained flesh after the operation and was able to work on his farm for two months, then the dropsical distention of his abdomen prevented work.

A year after this, at the request of the patient, Dr. Matas did a secondary operation and found the entire peritoneal cavity invaded by sarcoma. Pathological examination showed that the tumor was a typical myxosarcoma.

In this case of Dr. Matas's it is to be noted, in comparing it with the case of the writer, that the symptoms were of long duration; that the tumor was palpable early; that there was no constipation; that in appearance it was quite similar to the tumor in the writer's case, but was non-vascular and non-hæmorrhagic. Its cellular nature was said to be myxosarcomatous. The removal of the growth was possible because of the absence of vascularity, while in the writer's case removal was not to be considered because hæmorrhage from the slightest manipulation of the tumor was severe.

Primary tumors of the omentum of any sort are rare. A study of the records of the Massachusetts General Hospital shows that diseases or tumors of the omentum are exceedingly uncommon and that primary sarcoma of the omentum is of the greatest rarity. Since 1870 reports of only fourteen cases,

including that of the writer, were found in which the diagnosis of carcinoma or sarcoma of the omentum was recorded. In only one case, besides the case under discussion, was a positive diagnosis of primary sarcoma of the omentum made; all the other cases were undoubted secondary carcinoma or sarcoma. This was a case of sharply localized fibrosarcoma of the great omentum. A portion of the tumor was removed by operation, no extension to other organs found; the case died of peritoneal infection within three days after operation.

Many of the cases reported in periodical literature are lacking in careful descriptions and pathological details.

In 1883 Braun,² of Jena, operated on a case of probable primary myxosarcoma of the omentum. This, so far as is known, is the first reported case of tumor of the omentum in literature in which a careful microscopic diagnosis was made.

BRAUN's case was that of a man 34 years old, with symptoms of vomiting and severe epigastric pain with abdominal distention; a tumor the size of a man's head, movable, extending two fingers-breadth below the umbilicus, could be felt. The tumor occupied the great omentum, was twenty-seven centimetres long, twenty centimetres broad and twelve centimetres thick. It was tied off from the transverse colon and removed. There was a large amount of hæmorrhagic fluid in the abdominal cavity. It was stated that microscopic examination showed it to be a cystic myxosarcoma. The patient lived seven months.

In the same article Braun refers to a case reported by Czerny, that of a man 27 years old, in which case a similar tumor had been removed, together with a small piece of the stomach-wall.

Braun could only find reports of three cases of tumor of the omentum before the year 1885, and these were the cases of Simon, Pean and Witzel.³ There can be added to these cases the case of Colin.⁴ The pathology in these cases is uncertain. Colin's case was a large soft mass between the folds of the great omentum. Pean's case was a large hæmorrhagic cyst. The anatomical descriptions of most of the scattering cases reported before 1890 are incomplete and one cannot obtain a

clear idea of the relations of the tumor to the omental folds, the stomach or the colon.

Boormann,⁵ from a case of his own and one or two other cases, takes the ground that solid or cystic tumors of the great omentum are not primary tumors, but are false tumors of the omentum, and nothing but tumors originating in the walls of the stomach or the transverse colon. He is undoubtedly wrong in this point of view. He cites the case of Erlach⁶ in which a large myomatous tumor developed between the folds of the small omentum, which tumor had its origin in the muscular coat of the stomach; also the case of Segond,⁷ in which a very large cystic fibroid sarcoma completely enclosed by the folds of the great omentum, was so strongly adherent to the greater curvature of the stomach that it was necessary to resect a portion of that organ.

It can be stated positively that carcinoma cannot be primary in the omentum. No case has been found that on investigation did not prove to be either a secondary cancerous growth or an endothelioma.

Sturmdorf reports a case of primary carcinoma of the omentum and peritoneum, but furnishes no evidence that it was not a secondary growth.

It should be stated that knowledge of endotheliomata is still vague. Endotheliomata may simulate carcinoma here as elsewhere.

It is noteworthy that the gross appearance of secondary carcinoma, the so-called colloid cancer, of the omentum, and that of primary sarcomatous growths, myxosarcoma, or other forms of sarcoma at certain stages of degeneration, may be almost identical. Undoubtedly these curious spongy, vascular growths have been often inaccurately described and named. Most writers state that the sarcomata are invariably myxosarcomata; this is false; other forms of sarcoma, large round-cell, spindle-cell and mixed forms, as well as myxosarcoma, have been reported. The main reason for the confusion of ideas, aside from the scarcity of cases for study, seems to arise from

the tendency for all malignant growths of the omentum to disorganize, and for the cells to break down into gelatinous material and form cysts with gelatinous and hæmorrhagic contents. The appearance of most of these tumors is that of a nodular, vascular, spongy growth looking like a collection of strawberries, or as one writer has described it, a cherry pie, or a red sponge. Bland Sutton ¹⁰ in his book, "Tumors Innocent and Malignant," mentions this pathological condition as one frequently associated with cancer of the stomach, but states that the subject requires close investigation of perfectly fresh material for its proper elucidation.

Eve ¹¹ very carefully studied two cases, one a case of Lawson Tait, and one of Sir Spencer Wells, and clearly describes the minute pathology, proving each to be a sarcoma, stating that no trace of endothelial cells could be found in any portion of the tumor; that the name colloid cancer was inappropriate, although at the time of his writing such tumors were continually described as colloid cancer by accepted text-books. He concludes, very accurately, that true colloid cancer of the omentum is seen as a secondary affection, usually to disease of the ovary, but there is, on anatomical grounds, reason to believe that, if growths from the endothelium are excepted, primary cancer of this sort does not occur.

It is fair, therefore, to state that a certain percentage of the cases formerly called colloid cancer were sarcoma primary in the omentum.

It has been stated in text-books that among the primary growths of the omentum occur cysts, benign, hydatid or dermoid. In all probability many of the so-called cysts of the omentum are primary sarcomata; the contents of the cysts are largely due to hæmorrhage from the thin-walled blood-vessels of the sarcomatous portion of the cyst-walls. The cases reported by Reamy ¹² and Segond ⁷ strongly bear out this statement. The other primary tumors of the omentum are lipoma and fibroma. It has been stated that their occurrence is even more rare than sarcoma.

Primary sarcoma may originate in the posterior cavity of the omentum, starting from the lesser, or gastro-hepatic omentum. Only three such cases, however, have been reported. The tumor in these cases may grow down between the transverse colon and the stomach between the folds of the great omentum, as in the case of Gross and Sencert, or may push the stomach down into the pelvis, as in the case reported by Gould.

GROSS AND SENCERT¹³ report a case of a woman 53 years of age who had been previously well. For six months before had noticed vague abdominal pain coincident with loss of appetite and nausea at times, followed by obstinate constipation, which alternated at rare intervals with severe diarrhœa; never vomiting; never blood in the stools. For several weeks a tumor in the abdomen the size of a fist in the median line had been felt. A month before operation severe paroxysmal pain in the abdomen, with vomiting

Examination.—Thin and emaciated; some jaundice of conjunctivæ, no fever; heart and lungs normal. A tumor seen and felt in the abdomen occupying the umbilical region, extending into the hypogastric region and into the left flank, moving somewhat with respiration, rather fluctuating, giving the impression of a cyst of the ovary; percussion dull over the surface of the tumor, tympanitic in the flanks. Pelvic examination was negative; urine examination was negative. Provisional diagnosis: multilocular cyst of the ovary, or cyst of the mesentery. A few days after entering the hospital a long crisis of pain, absolute constipation; frequent vomiting of yellow bile; pulse 108; normal temperature.

At the operation a tumor whitish in appearance and covered with countless fatty spots and with numerous extremely dilated blood-vessels covered by the anterior fold of the great omentum was found. The anterior surface of the tumor was strongly united to the anterior layer of the great omentum by a number of strong bands enclosing very large blood-vessels. It was found that the tumor originated in the lesser omentum and had found its way into the greater omentum by pushing down the transverse colon. There was no involvement of the stomach. The tumor was not hæmorrhagic. There was no fluid in the abdomen. The tumor was removed with comparative ease. The patient died of shock in forty-eight hours.

At the autopsy it was found that it was a primary tumor of the omentum and not secondary to a growth of the stomach; that it originated in the lesser omentum; that its only connection to the stomach, colon and other viscera was the omentum with large blood-vessels. The tumor was the size of a man's head.

Pathological examination showed the tumor everywhere ei

by a fibrous membrane, soft, fluctuating, containing numerous cystic cavities. Most of the tumor had a water-soaked appearance like a sponge. The cystic and sponge-like areas of the tumor were interspersed with various-sized regions of firmer tissue; the spongy and cystic parts of the tumor were filled with bloody fluid.

Microscopic examination of the tumor showed the white and solid parts of the tumor to be the typical structure of sarcoma, spindle-cell sarcoma.

Attempting to explain the fact that in one case a tumor of the lesser omentum may push down the transverse colon and grow into the greater omentum, not displacing the stomach to any extent, while in another case the stomach is much displaced downward, Gross and Sencert state that in intra-uterine life there is free communication between the cavity of the lesser omentum and that of the greater omentum, and that exceptionally in adults the communication persists. The fusion of the layers between the transverse colon and the stomach does not in certain cases entirely obliterate the communication between the two pouches. Displacement of the stomach or colon by a growth from the lesser omentum depends also upon many factors, as adhesions, size of tumors, etc.

GOULD¹⁴ reports a case of sarcoma of the gastrohepatic omentum that is to be compared with the case of Gross and Sencert. It is a remarkable case because of the great displacement of the stomach and intestines and because the growth was removed and the patient lived over four years in good health. A man 38 years of age, family and previous history unimportant. Twelve months before admission to the hospital he noted that he was getting thinner about the face and stouter in the abdomen; the abdominal swelling kept on increasing. Three weeks before admission his symptoms were colicky pain and diarrhoea. His appetite had been good.

Examination.—Not greatly emaciated; pulse 66. Nothing said about temperature or white blood-count. Abdomen greatly enlarged, measuring 40½ inches in circumference at the level of the umbilicus. A tense, firm, uneven, non-fluctuating tumor with rounded outline was felt as far down as the right groin; the edge could be felt up to the eleventh rib on the right and to the tenth rib cartilage on the left. Below, a finger-tip could be inserted between the edge of the tumor and the pubis; the upper limit could not be felt; under the ribs the mass could be moved de to side. Dulness over the whole surface of the tumor and

tympanitic percussion in each flank; there was no jaundice, no ascites, no œdema. Urine was normal.

At the operation the surface of the tumor presented; it was not connected with the liver, spleen or kidneys. The growth started in the lesser omentum and had pushed the stomach down into the pelvis. The attachment of the tumor behind was a strand of tissue in which were large blood-vessels. The lesser omentum seemed continuous with the tumor and required division and ligation of a dozen bleeding points. The patient recovered from the operation and left the hospital seven weeks afterward. Four years after operation he was apparently in excellent health and the stomach in its usual situation. The tumor weighed twenty-one pounds.

Microscopic examination showed that it was largely made up of extravasated blood. Areas of blood-cysts and blood-soaked tissue between which were more or less extensive strands of tissue composed of bundles of long narrow spindle-cells; a spindle-cell sarcoma, the substance of which was very friable. Diagnosis previous to operation was tumor of the great omentum.

Could thought the fact that the absence of stomach resonance above a dull solid tumor, which was remarked as a prominent sign in this case, should have led to a diagnosis of a tumor starting in the lesser omentum. He seems to think that it was right to exclude a malignant growth because of the symptoms, but reference to almost all the cases will show that sarcomatous tumors of the omentum are noticed much longer than in his case. His case was a rapid one, as was the case of the writer.

Only one other case of primary tumor of the small omentum has been found, a case referred to by Owen. In this case no microscopic diagnosis was made, although from the appearance and vascularity of the growth it was in all probability a sarcoma.

DOUGLAS¹⁵ reports a case of myxosarcoma primary in the great omentum. For six months previous to the operation, constipation, colicky pains in the abdomen, weakness and loss of flesh. The tumor was felt with difficulty and was not very movable. At the operation a large flat tumor made up of numerous little cherry-red lobules, like a "cherry pie," no mention of fluid in the abdomen. This tumor was removed close to the colon. Patient died in four days of gastric hæmorrhage.

Post-mortem examination resulted in a diagnosis of primary myxosarcoma of the great omentum with no secondary involvement.

In connection with this death from gastric hæmorrhage, Lauenstein¹⁶ lays stress upon hæmorrhage from the stomach and duodenum as a possible danger in operations upon the omentum with removal of the whole or a part. He states that Eiselberg has seen such a case, and that Friedrich has experimented on dogs and guinea-pigs in relation to this and found that the resection of the omentum was liable to cause ulcers in the stomach and duodenum and multiple hæmorrhagic and necrotic areas in the liver; therefore, he advised great care in handling and removing the omentum.

ANDERS¹⁷ reports a case of a very large sarcoma of the omentum in a man 35 years old, which was in all probability primary in the omentum, but with secondary involvement of the liver with sarcomatous nodules. About two years before a small tumor low down in the abdomen, which gradually increased in size, was noticed. Abdominal pain, varied in severity, associated with constipation and occasional diarrhœa; later some frequency of urination and severe abdominal discomfort, with increased constipation. Four or five months after first noticing the tumor, he passed a tapeworm. On entering the hospital a hard, distinctly-nodulated, slightly-movable mass was felt in the abdomen, extending into the pelvis. At time of entrance to the hospital the liver was found to be normal in shape and size, whereas, a few weeks before death, it extended below the ribs and was felt as a large mass in the right hypocondrium. During the last weeks of life constipation was marked. Rapid loss of flesh; death suddenly, without operation. It is to be noted that the urine was normal, that the temperature chart for a short time showed only slight elevation of temperature. For a week before death it was sub-normal.

At the autopsy a large whitish-pink, non-vascular, markedly-lobulated and furrowed tumor-mass, extending from the top of the great omentum to the brim of the pelvis, was found. The entire mass was seen to depend from the great omentum at the root of which was attached a smaller mass. These two portions involved the omentum alone and were not connected with any of the neighboring structures. Small masses were found attached to the peritoneal covering of the sigmoid, one to the bladder and rectum. Everywhere in the liver were small and large nodules projecting from the surface. The structure of these nodes was exactly similar to the large abdominal growths. There was nothing else found at the autopsy.

Microscopic examination showed round-cell sarcoma.

Anders considers, and rightly so, from the history and pathological findings, that the growth was primary in the

omentum. His reasons are that the tumor was first felt in the region of the omentum; that there was no evidence to show disease of the liver until shortly before death. The extensive metastasis in the liver was noteworthy.

In addition to the cases referred to or outlined above it has been possible to find reports of but six other cases of primary sarcoma of the omentum.

ROCHFORD¹⁸ reports a case of a woman 37 years old. A slowly-growing tumor in the abdomen noticed for three years; for four or five months before operation severe abdominal pain and dulness; there was nothing stated about indigestion or constipation. Urine examination negative; white blood-count 11,000; temperature and pulse normal. No mention is made of ascites or of mobility of the tumor.

At the operation a large tumor, friable and spongy, having a mottled appearance was found. No other abdominal organs were affected. The tumor was removed with severe hæmorrhage. The result of the operation is not given. Microscopic examination showed spindle-cell sarcoma of the omentum.

SCHMIDLECHNER¹⁹ reports a case of a woman 48 years old. Tumor noticed in the abdomen for a year. No symptoms of indigestion or constipation; no emaciation; abdominal distention present. A tumor the size of a man's head, hard, slightly movable, extending far below the umbilicus, could be felt.

At operation an omental tumor, large, red and easily bleeding, adherent to the bladder, appendix and some of the intestinal coils, covered with a smooth, shiny and very vascular membrane, was found with many small cystic cavities filled with a brownish-red bloody fluid. It is stated that this tumor was a spindle-cell sarcoma originating in the connective tissues of the omentum and that the hæmorrhagic cysts were caused by sarcoma-cells having eroded the blood vessels. It is stated that half a quart of bloody serum was found in the abdomen. Technique of removal of this tumor is not given. It is stated that the patient nearly died from the operation, but eventually was up and out of bed in four weeks. Further history of this case not given.

CHIARLEONI²⁰ has reported a case of sarcoma of the large omentum in which torsion or rotation had taken place. No operation; nature of disease found at autopsy.

EVE reports a case of Spencer Wells in which a rapidly-growing omental tumor weighing eight pounds was removed by operation; a myxosarcoma. Its surface was covered by rounded bodies of various sizes, the largest nodule being half an inch in diameter. They were attached to the chief by threads, like currents on a stalk; they had a softish, homogeneous section and microscopically were composed of

hyaline bands of connective tissue, forming a wider or closer imperfect mesh-work of which the spaces were filled by branched connective tissue and round cells. Many of the cells were swollen and indistinct in outline from mucoid degeneration. No other details of this case are given.

EVE.¹¹ Case of Lawson Tait. Male, age not given. For eight months malaise and gastric indigestion, abdominal distention, loss of flesh, pain in the right hypocondrium and back, tenderness in the epigastrium, fluid rapidly accumulating in the peritoneal cavity. A lump behind the umbilicus and cartilage of tenth rib on the left side moving with the diaphragm, not tender, dull, was felt. After aspiration to relieve the great distention, operation February, 1885. A large tumor of the omentum sixteen inches in length, from above downwards, nine or ten inches or more. Its surface was very uneven, flocculent and shreddy, the flocculent appearance being produced by the projection of rounded masses of gelatinous material attached to the surface by shreds of tissue. The section had the appearance of a finely spongy texture, which reproduced a close mesh-work of narrow bands of indistinct connective tissue enclosing rounded masses of the same gelatinous material.

The tumor was incompletely removed owing to the alarming condition of the patient when the splenic corner was reached. Nothing is said about the result of the operation.

BRAIDWOOD²¹ reports a case of spindle-cell sarcoma of the omentum. He does not describe the gross appearance of the tumor. Case 46 years old, female, died with symptoms of vomiting, irregular bowels, abdominal pain, abdominal tumor. No operation, but nature of tumor found in post-mortem examination.

MILLER²² reports a case of a female 55 years old. Symptoms of epigastric pain, indigestion, nausea and constipation. Urine normal. Severe pain in the region of the umbilicus. It is not mentioned that any tumor was felt; the reason for this is probably because of the extraordinary amount of ascitic fluid. The patient was tapped three times in a few months and about two gallons of ordinary ascitic fluid was drawn each time. There was no operation, but an autopsy. The growth is described as composed of soft vascular, nodular masses like "strawberries."

The *microscopic report* was "Primary endothelial sarcoma," but a study of the details of the cellular pathology as described, and especially the statement that the vascular endothelium was unaffected, leads to the belief that the growth was a myxosarcoma, and the word endothelial inaccurately used.

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